

From: [Jay Field](#)
To: [Eric Blischke/R10/USEPA/US@EPA](#)
Cc: [Benjamin Shorr](#); [Burt Shephard/R10/USEPA/US@EPA](#); [Joe Goulet/R10/USEPA/US@EPA](#); [Robert Gensemer](#); [Robert Neely](#); [Jennifer Peterson](#)
Subject: Re: Interpretation of Empirical Bioassay Data at Portland Harbor
Date: 05/31/2009 12:04 PM

Eric,
re-reading your email, I am not clear about the nature of the discrepancy that you noted. the AOPC results listed below appear to be consistent with the classification in the table and with our interpretation of the data. it's possible that minor discrepancies could be related to rounding and significant figures. if so, I would suggest that such a result would reflect the problem using bright-line thresholds, without regard for the uncertainty associated with these types of evaluations.

I recalculated the classifications using values in table RE-2 (in my original calculation, I used the values in table RE-1, which had more decimal points) and found one discrepancy: G737 was originally classified as level 2 for CH_biomass and was level 1 in the new calculation, although HY_biomass was also classified as level 2, so the maximum tox test result for that sample would not change. I did not check for statistical significance, but that should not be a factor for level 2 or greater. If statistical significance appears to play a role, then LWG should perform the same type of power evaluation as previously to identify statistically non-significant samples with low power.

Please clarify the discrepancies observed. I will be around most of this week and would be glad to discuss this with you or John Toll to sort this out.

Jay

Blischke.Eric@epamail.epa.gov wrote:

Jay, over the past two days, we participated in a meeting with the LWG to discuss and reach agreement on AOPCs at the Portland Harbor Site. Based on our data retreat held earlier this month, we determined that for the most part, AOPCs could be identified based on PCBs, B(a)P and sediment toxicity. We assessed sediment toxicity using the bioassay evaluation that you performed based on the reference envelope. This information was converted into a layer in the GIS tool by Ben Shorr.

During our discussions with the LWG, it became apparent that the LWG's interpretation of the bioassays did not match ours. I have attempted to look into this somewhat and it appears to me that the analysis that you performed was consistent with the March 31, 2009 direction that we provided to the LWG.

Table RE-2 in the March 31 direction provided the following criteria for identifying level 1, 2, and 3 hits:

Table RE-2: Biological effect levels for sediment toxicity test results, in terms of proportional response relative to reference envelope sediments.

Test	No effect level	Minor effect level	Moderate effect level	Severe effect level
<i>Hyalella azteca</i> 28-day mortality	Survival ≥ 0.895	$0.895 > \text{survival} \geq 0.806$	$0.806 > \text{survival} \geq 0.716$	Survival < 0.716
<i>Hyalella azteca</i> 28-day biomass	Biomass ≥ 0.732	$0.732 > \text{biomass} \geq 0.659$	$0.659 > \text{biomass} \geq 0.585$	Biomass < 0.585
<i>Chironomus tentans</i> 10-day mortality	Survival ≥ 0.948	$0.948 > \text{survival} \geq 0.854$	$0.854 > \text{survival} \geq 0.759$	Survival < 0.759
<i>Chironomus tentans</i> 10-day biomass	Biomass ≥ 0.953	$0.953 > \text{biomass} \geq 0.856$	$0.856 > \text{biomass} \geq 0.761$	Biomass < 0.761

A quick review of some of the AOPCs in question resulted in the following bioassay interpretations:

AOPC 10

G638 - Level 2 hit (Hy biomass) - 61.97%

G6371 - Level 2 hit (Hy biomass) - 62.65%

AOPC 5

G133 - Level 2 hit (Ch survival) - 81.94%

G622 - Level 2 hit (Hy biomass) - 64.67%

G121 - Level 2 hit (Ch survival and biomass) - 83.3 and 83.3%

AOPC 4

G105 - Level 3 hit (Ch survival and biomass) - 68.06 and 61.42%

AOPC2

G6121 - Level 3 hit (Hy biomass) 58.49%

G061 - Level 2 hit (Hy biomass) - 64.45%

G613 - Level 2 hit (Hy biomass) - 64.64%

AOPC 8

G155 - Level 3 hit (Ch biomass) 66.40%

G157 - Level 3 hit (all 4 endpoints) - 14 - 50%

G160 - Level 3 hit (Ch survival and growth) 19 - 43%

G161 - Level 3 hit (all 4 endpoints) 30 - 70%

These all seem to match up with the above table. Let me know if I am missing anything.

John Toll may be calling you to discuss this with you and you may need to confirm your evaluation. Please let me know if I am missing anything here. We will likely need to get the results of the LWG bioassay interpretation and have a call between you, John, Burt and myself to resolve this.

Thanks, Eric

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Jay Field
Assessment and Restoration Division
Office of Response and Restoration, NOAA
7600 Sand Point Way NE
Seattle, WA 98115-6349
(P) 206-526-6404
(F) 206-526-6865
(E) jay.field@noaa.gov